



2/18

C

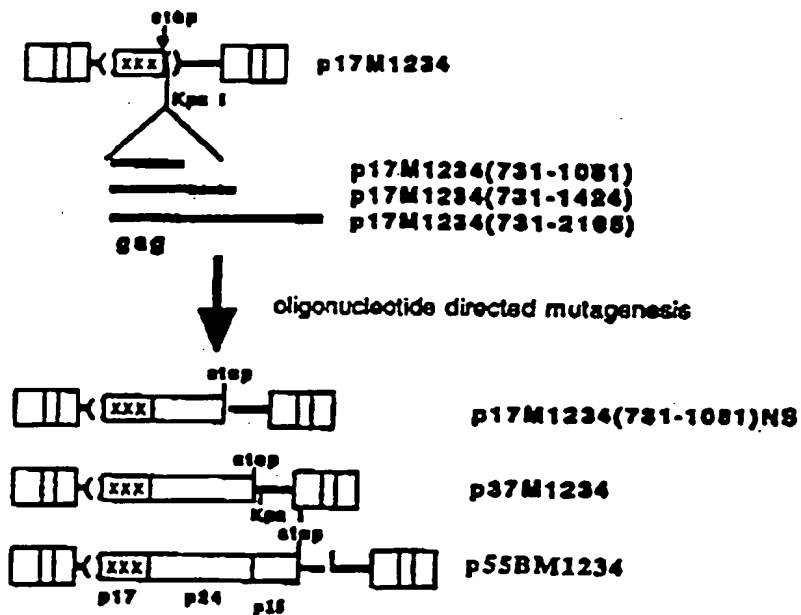
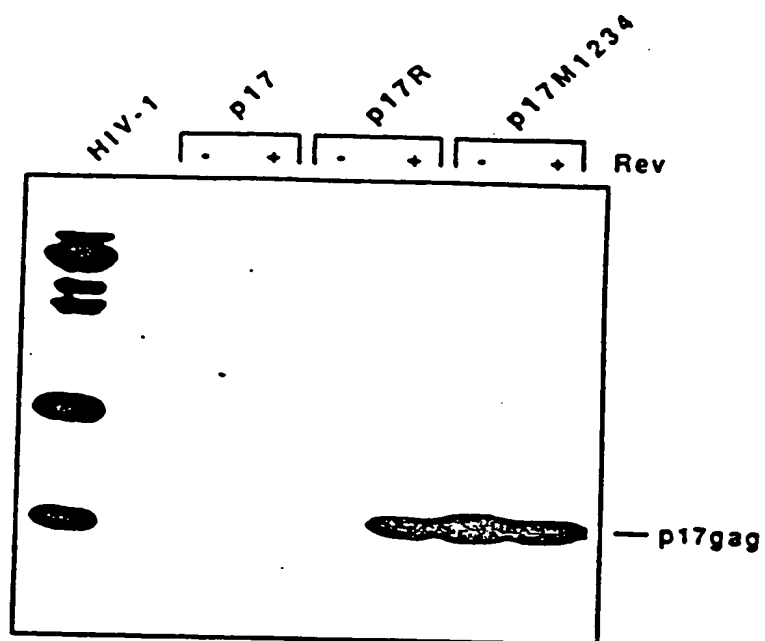


Figure 1 continued



A



B

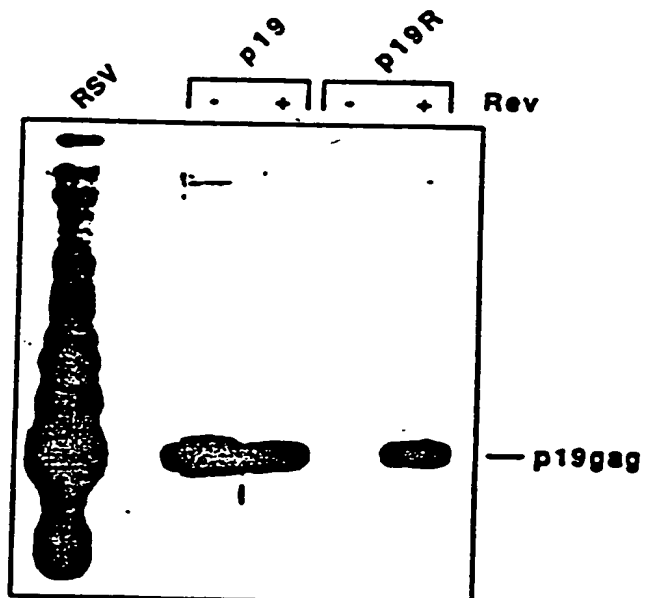
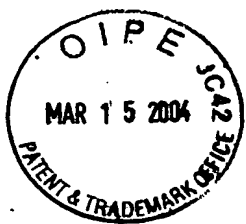
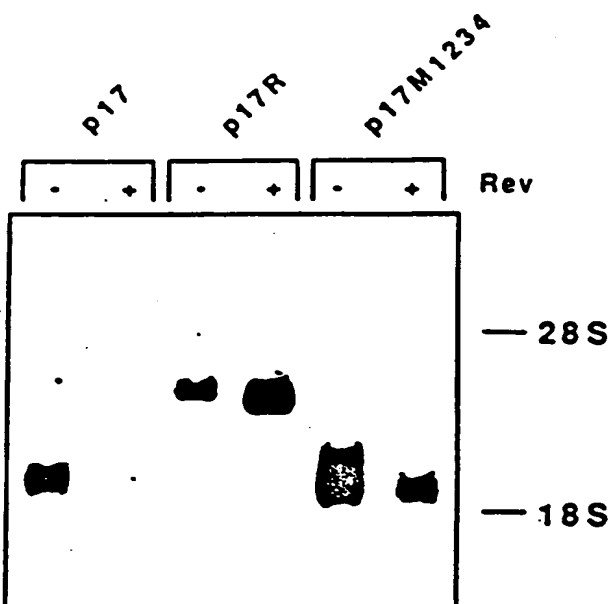


Figure 2



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A



B

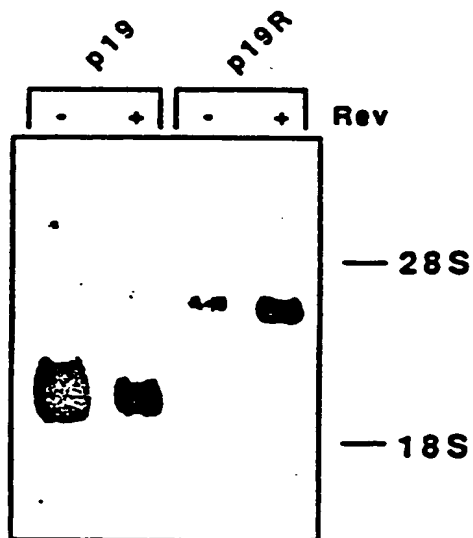


Figure 3



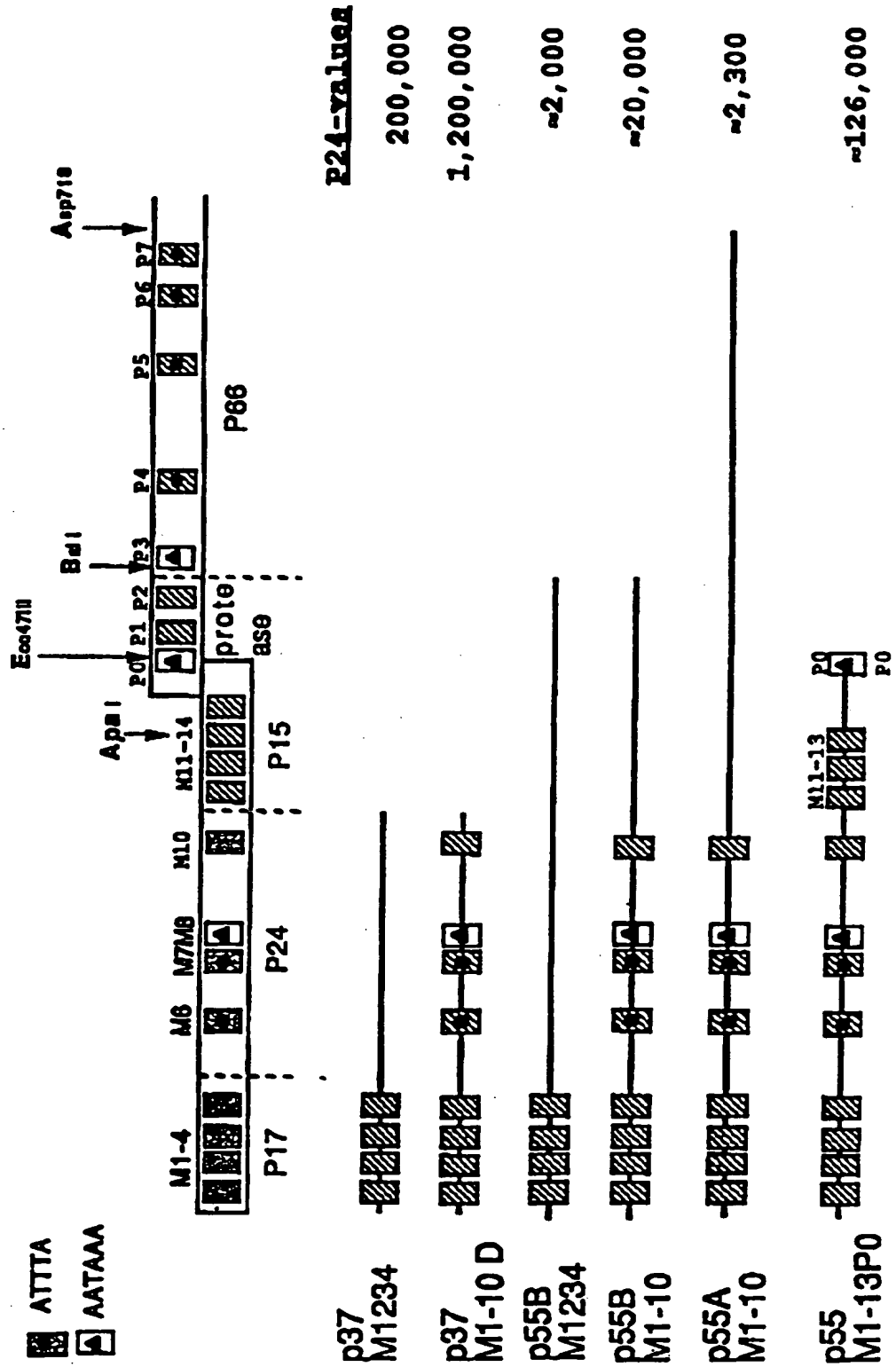
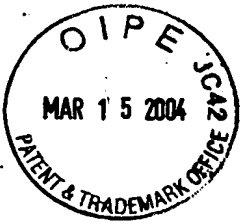


Figure 6

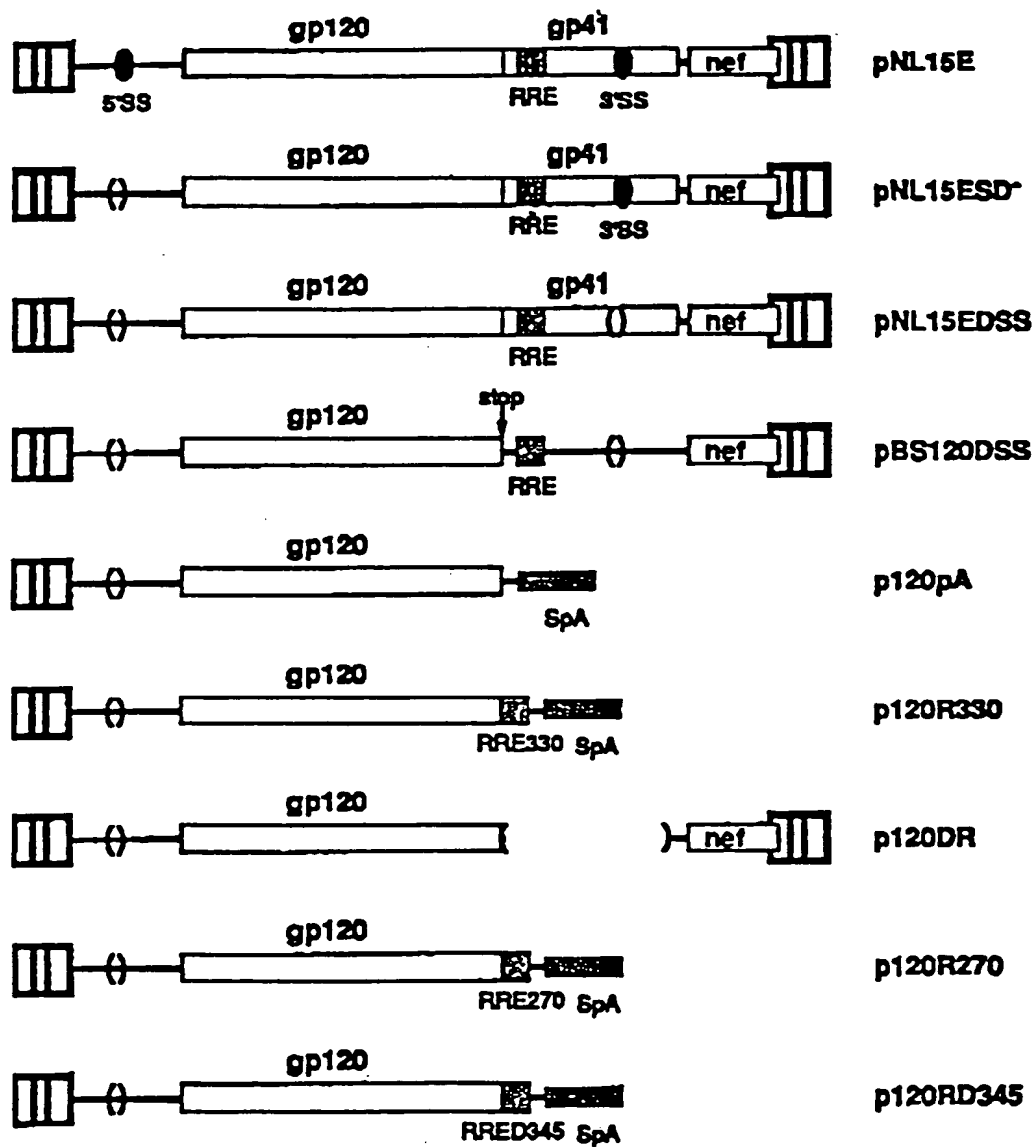
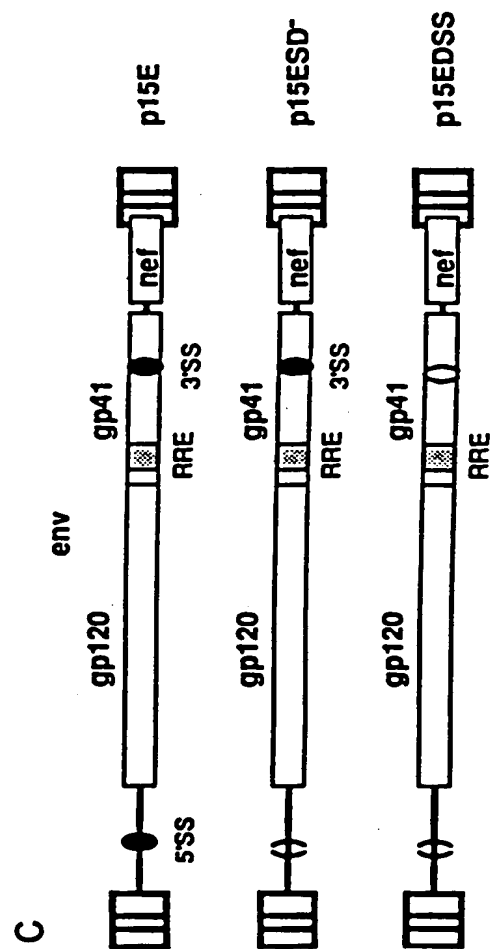


Figure 7

Figure 8



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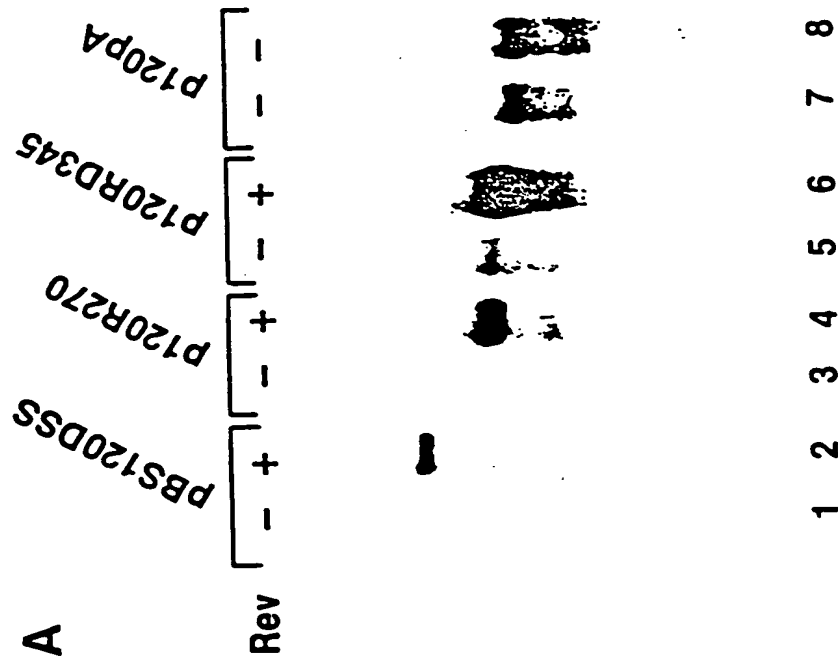


Figure 9





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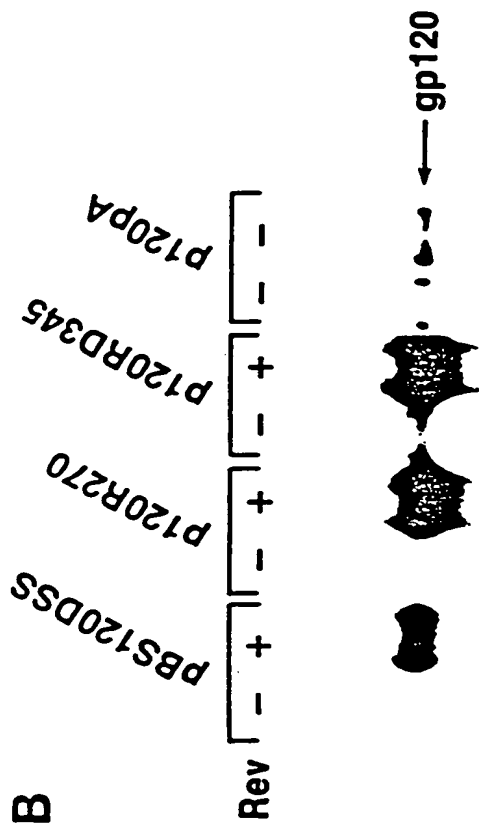
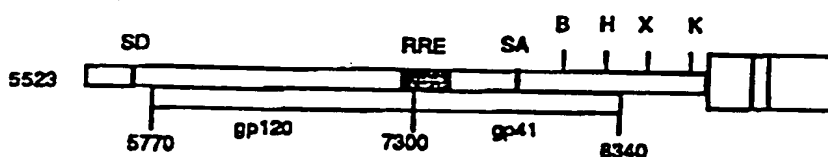


Figure 9



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**Identification of INS regions within the
env mRNA using the p19 vector.**



FRAGMENT SIZE		INS EFFECT	
A	276	7684-7859	none
B	234	7684-7884, 7927-7959	none
C	323	7595-7884, 7927-7959	10 X
D	128	7939-8066	none
E	478	7939-8418	10 X
F	362	8200-8581	> 100 X
G	330	7266-7595	3-5X
E	668	5523-6190	10 X

Figure 10



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Identification of INS regions within the
env mRNA using the p37M1-10D vector.

(fig 5 env,
formerly fig D)

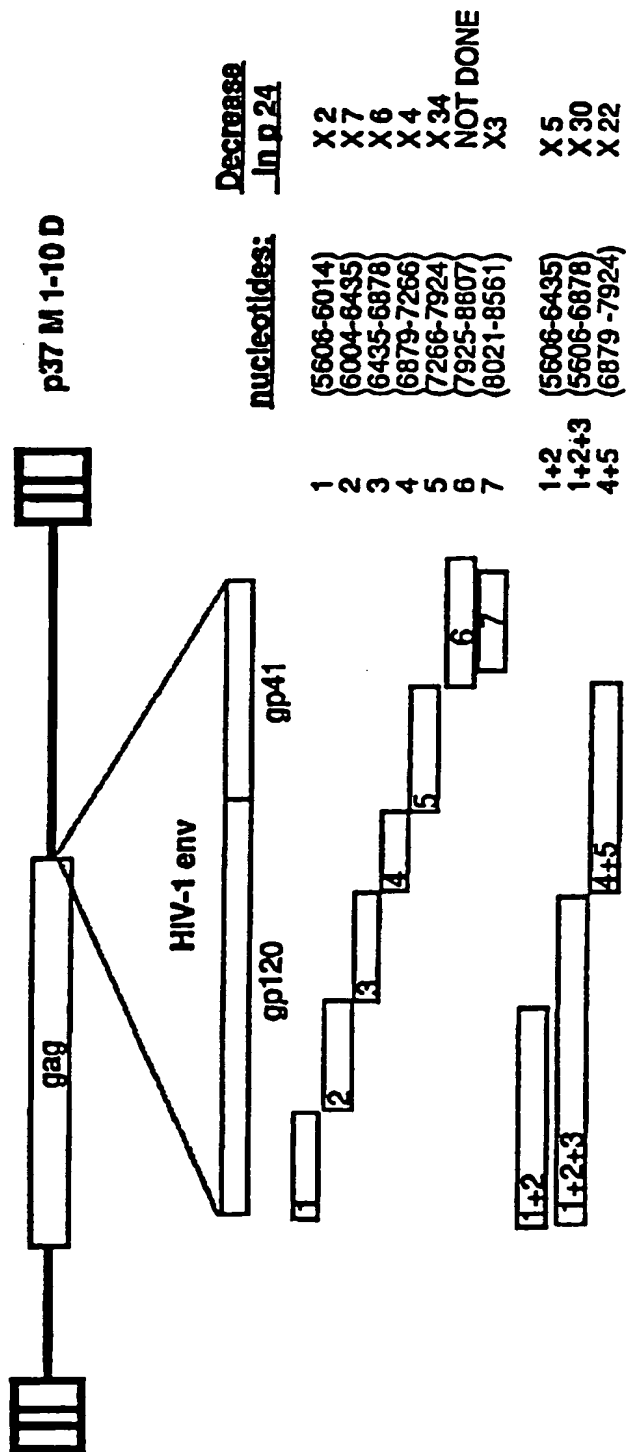


Figure 11

Elimination of negative effects of CRS

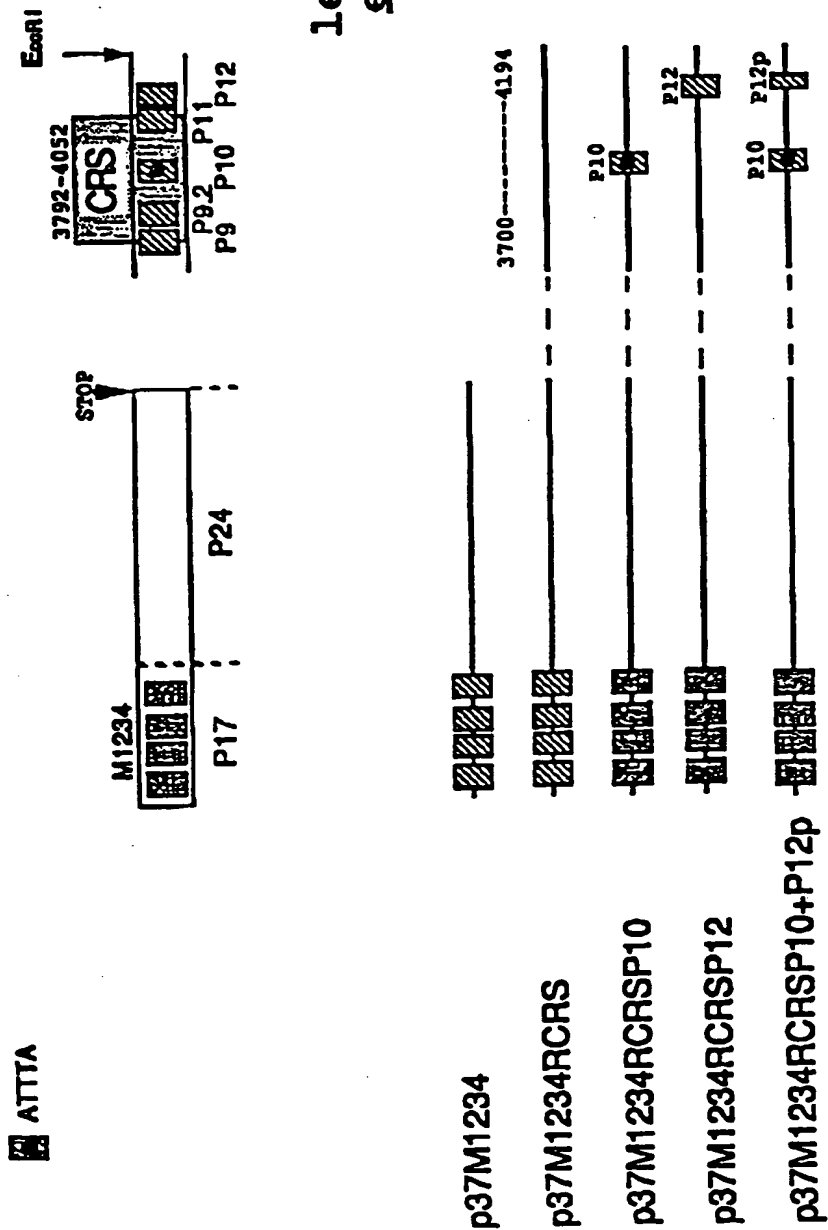


Figure 12



POINT MUTATIONS ELIMINATING THE NEGATIVE EFFECTS OF CRS IN THE poi REGION
(nucleotides 3700-4194) (SEQ ID NO:127)

GGTACCAGCACACAAGGAATTGGAGGAATGAACAAGTAGATAAATTAGTCAGTCTGGAAATCAGGAAGTACTATTTT
TAGATGGAATAGATAAGGCCCAAGATGAACATGAGAATATCACAGTAATTGGAGAGCAATGGCTAGTGATTTTAACCTG
CCACCTGTAGTACCAAGAANAATAGTAGCCAGCTGTGATAAATGTCAGCTAAAGGAGAGCCATGCCATGGACAAGTAGA
CTGTAGTCCAGGAATATGGCAACTAGATTGTACACATTTAGAGGAAAAGTTATCTGGTAGCAGTTTCATGTAGCCAGTG
g g c c g c c g g g g g
GATATATAGAACGAGAGTTATTCCAGCAGAAACAGGGCCAGCAACAGCATATTTCTTTTAAATTTAGCAGGAAGATGG
CCAGTAAAAACAATACATACTGACAAATGGCAGCAATTTTCACCGGTGCTACGGTTAGGGCCGCCCTGTTGGTGGCGGGGAAT
c g c a c t
CAAGCAGGAATTTGG

Figure 13



COMPLETE NUCLEOTIDE SEQUENCE OF p37M-1-10D
AND
AMINO ACID SEQUENCE OF p37^{gag} PROTEIN (SEQ ID NO:129)

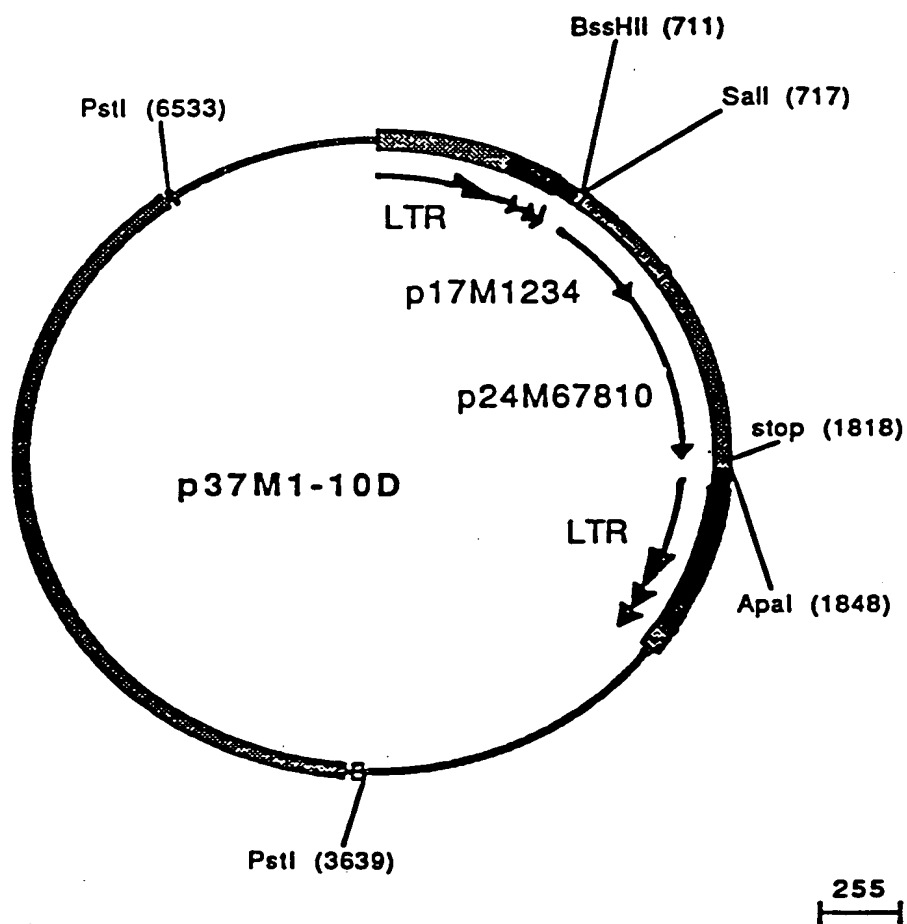


Figure 14



1 TGG AAGGGCT AATTTGGTCC CAAAAAGAC AAGAGATCCT TGATCTGTGG ATCTACCACA CACAAGGCTA
 71 CTTCCTGAT TGGCAGAACT ACACACCAGG GCCAGGGATC AGATATCCAC TGACCTTTGG ATGGTGCTTC
 141 AAGTTAGTAC CAGTTGAACC AGAGCAAGTA GAAGAGGCCA AATAAGGAGA GAAGAACAGC TTGTTACACC
 211 CTATGAGCCA GCATGGGATG GAGGACCCGG AGGGAGAAGT ATTAGTGTGG AAGTTTGACA GCCTCTAGC
 281 ATTCGTAC ATGGCCCGAG AGCTGGATCC GGAGTACTAC AAAGACTGCT GACATCGAGC TTTCTACAAG
 351 GGACTTTCCG CTGGGGACTT TCCAGGGAGG TGTGGCCTGG GCGGGACTGG GGAGTGGCGA GCCCTCAGAT
 421 GCTACATATA AGCAGCTGCT TTTTGCTGT ACTGGGTCTC TCTGGTTAGA CCAGATCTGA GCCTGGGAGC
 491 TCTCTGGCTA ACTAGGGAAC CCACTGCTTA AGCCTCAATA AAGCTTGCTT TGAGTGTCTA AAGTAGTGTG
 561 TGCCCGTCTG TTGTGTGACT CTGGTAACTA GAGATCCCTC AGACCCTTTT AGTCAGTGTG GAAAATCTCT
 631 AGCAGTGGCG CCCGAACAGG GACTTGAAAG CGAAAGTAAA GCCAGAGGAG ATCTCTCGAC GCAGGACTCG
 BssHII (711)
 701 GCTTGCTGAAGCGCGCTCGACAGAGATGGGTGCGAGAGCGTCAGTATTAAGCGGGGAGAATTAGATCGATGG
 1 Met Gl yAl aArgAl aSer Val LeuSer Gl yGl yGl uLeuAspArgTrp
 777 GAAAAATTCGGTTAAGGCCAGGGGGAAGAAGTACAAGCTAAAGCACATCGTATGGGCAAGCAGGGAGCTAG
 17 Gl uLys Ile ArgLeuArgPro Gl yGl yLysLysLysTyrLysLeuLysHis Ile Val TrpAl aSer Arg Gl uLeuG
 853 AACGATTCGAGTTAATCCTGGCCTGTTAGAAACATCAGAAGGCTGTAGACAAATACTGGGACAGCTACAACCATC
 42 LuArgPheAl aVal AsnPro Gl yLeuLeu Gl uThr Ser Gl uGl yCysArg Gl nIleLeu Gl yGl nLeu Gl nProSe
 929 CCTTCAGACAGGATCAGAGGAGCTTCGATCACTATACAACACAGTAGCAACCCCTCTATTGTGTGCACCAGCGGATC
 67 rLeu Gl nThr Gl ySer Gl uGl uLeuArgSer LeuTyrAsnThr Val Al aThr LeuTyrCysVal His Gl nArgIle
 1005 GAGATCAAGGACACCAAGGAAGCTTTAGACAAGATAGAGGAAGAGCAAAACAAGTCCAAGAAGAAGGCCAGCAGG
 93 Gl uIleLysAspThr Lys Gl uAl aLeuAspLys Ile Gl uGl uGl uGl nAsnLys Ser LysLysLysAl aGl nGl nA
 1081 CAGCAGCTGACACAGGACACAGCAATCAGGTACGCCAAAATTACCTATAGTCAGAATCCAGGGGCAATGGT
 118 l aAl aAl aAspThr Gl yHis SerAsn Gl nVal Ser Gl nAsn Thr ProIleVal Gl nAsn Ile Gl nGl yGl nMet Va
 1157 ACATCAGGCCATATCACCTAGAAGCTTTAAATGCATGGGTAAAAGTAGTAGAAGAGAAGGCTTTAGCCAGAAAGTG
 11 His Gl nAl aIleSer ProArgThr LeuAsnAl aTrpVal LysVal Val Gl uGl uLysAl aPheSer Pro Gl uVal
 1233 ATACCCATGTTTTAGCATTATCAGAAGGAGCCACCCACAGGACCTGAACAGCATGTTGAACACCGTGGGGGGAC
 37 IleProMet PheSer Al aLeuSer Gl uGl yAl aThr Pro Gl nAspLeuAsnThr MetLeuAsnThr Val Gl yGl yH
 1309 ATCAAGCAGCCATGCAATGTAAAAGAGACCATCAATGAGGAAGCTGCAGAATGGGATAGAGTGCATCCAGTGCA
 62 is Gl nAl aAl aMet Gl nMetLeuLys Gl uThr IleAsn Gl uGl uAl aAl aGl uTrpAspArgVal HisProVal His
 1385 TGCAGGGCCTATTGCACCAGGCCAGATGAGAGAACCAAGGGGAAGTGACATAGCAGGAAGTACTAGTACCCCTCAG
 87 sAl aGl yProIleAl aPro Gl yGl nMetArg Gl uProArg Gl ySerAspIleAl aGl yThr Thr Ser ThrLeu Gl n
 1461 GAACAAATAGGATGGATGACAAATAATCCACCTATCCAGTAGGAGAGATCTACAAGAGGTGGATAATCCTGGGAT
 113 Gl uGl nIle Gl yTrpMet ThrAsnAsnProProIleProVal Gl yGl uIleTyrLysArgTrpIleIleLeu Gl yL
 1537 TGAACAAGATCGTGAGGATGTATAGCCCTACCAGCATTCTGGACATAAGACAAGGACCAAGGAACCCCTTTAGAGA
 138 euAsnLys IleValArgMet TyrSer ProThr Ser IleLeuAspIleArg Gl nGl yProLys Gl uProPheArgAs

Figure 14 continued

1613 CTATGTAGACCGGTTCTATAAACTCTAAGAGCTGAGCAAGCTTCACAGGAGGTAAAAAATTGGATGACAGAAACC
 163▶ pTyrValAspArgPheTyrLysThrLeuArgAlaGluGlnAlaSerGlnGluValLysAsnTrpMetThrGluThr

1689 TTGTTGGTCCAAATGCGAACCCAGATTGTAAGACCATCTGAAGGCTCTCGGCCAGCGGTACACTAGAAGAAA
 189▶ LeuLeuValGlnAsnAlaAsnProAspCysLysThrIleLeuLysAlaLeuGlyProAlaAlaThrLeuGluGluMet

1765 TGATGACAGCATGTCAGGGAGTAGGAGGACCCGGCCATAAGGCAAGAGTTTTGTAGGGATCCACTAGTTCTAGACT
 214▶ eIMetThrAlaCysGlnGlyValGlyGlyProGlyHisLysAlaArgValLeu

stop (1818)

.XbaI (1838)

ApaI (1848)

1841 CGAGGGGGGG CCCGGTACCT TTAAGACCAA TGACTTACAA GGCAGCTGTA GATCTTAGCC ACTTTTTTAAA

1911 AGAAAAGGGG GGACTGGAAG GGCTAATTCA CTCCCAAAGA AGACAAGATA TCCTTGATCT GTGGATCTAC

1981 CACACACAAG GCTACTTCCC TGATTGGCAG AACTACACAC CAGGGCCAGG GGTCAGATAT CCACTGACCT

2051 TTGGATGGTG CTACAAGCTA GTACCAGTTG AGCCAGATAA GGTTAGAAGAG GCCAATAAAG GAGAGAACAC

2121 CAGCTTGTTA CACCCTGTGA GCCTGCATGG AATGGATGAC CCTGAGAGAG AAGTGTTAGA GTGGAGGTTT

2191 GACAGCCGCC TAGCATTTCA TCACGTGGCC CGAGAGCTGC ATCCGGAGTA CTTCAAGAAC TGCTGACATC

2261 GAGCTTGCTA CAAGGGACTT TCCGCTGGGG ACTTTCAGG GAGGCGTGGC CTGGGGCGGA CTGGGGAGTG

2331 GCGAGCCCTC AGATGCTGCA TATAAGCAGC TGCTTTTTGC CTGTACTGGG TCTCTCTGGT TAGACCAGAT

2401 CTGAGCCTGG GAGCTCTCTG GCTAACTAGG GAACCCACTG CTTAAGCCTC AATAAAGCTT GCCTTGAGTG

2471 CTTCAAGTAG TGTGTGCCCG TCTGTTGTGT GACTCTGGTA ACTAGAGATC CCTCAGACCC TTTTAGTCAG

2541 TGTGGAATAAT CTCTAGCACC CCCAGGAGG TAGAGGTTGC AGTGAGCCAA GATCGCGCCA CTGCATTCCA

2611 GCCTGGGCAA GAAACAAGA CTGTCTAAAA TAATAATAAT AAGTTAAGGG TATTAATAT ATTTATACAT

2681 GGAGGTCATA AAAATATATA TATTTGGGCT GGGCGCAGTG GCTCACACCT GCGCCCGGCC CTTTGGGAGG

2751 CCGAGGCAGG TGGATCACCT GAGTTTGGGA GTTCCAGACC AGCCTGACCA ACATGGAGAA ACCCCTTCTC

2821 TGTGTATTT TAGTAGATT TATTTTATGT GTATTTTAT CACAGGTATT TCTGAAAAAC TGAAACTGTT

2891 TTTCTCTAC TCTGATACCA CAAGAATCAT CAGCACAGAG GAAGACTTCT GTGATCAAA GTGGTGGGAG

2961 AGGGAGGTTT TCACCAGCAC ATGAGCAGTC AGTTCTGCCG CAGACTCGGC GGGTGTCTTT CGGTTCAGTT

3031 CCAACACCGC CTGCCTGGAG AGAGGTCAGA CCACAGGGTG AGGGCTCAGT CCCCAGACA TAAACACCCA

3101 AGACATAAAC ACCCAACAGG TCCACCCCGC CTGCTGCCCA GGCAGAGCCG ATTCAACCAAG ACGGGGAATTA

3171 GGATAGAGAA AGAGTAAGTC ACACAGAGCC GGCTGTGCCG GAGAACGGAG TTCTATTATG ACTCAATCA

3241 GTCTCCCAA GCATTCCGGG ATCAGAGTTT TTAAGGATAA CTTAGTGTGT AGGGGGCCAG TGAGTTGGAG

3311 ATGAAAGCGT AGGGAGTCGA AGGTGTCCTT TTGCGCCGAG TCAGTTCCTG GGTGGGGGCC ACAAGATCGG

3381 ATGAGCCAGT TTATCAATCC GGGGGTGCCA GCTGATCCAT GGAGTGCAGG GTCTGCAAAA TATCTCAAGC

3451 ACTGATTGAT CTTAGGTTTT ACAATAGTGA TGTTACCCCA GGAACAATTT GGGGAAGGTC AGAATCTTGT

3521 AGCCTGTAGC TGCATGACTC CTAAACCAT AATTCTTTTT TGTTTTTTTT TTTTATTTT TGAGACAGGG

PstI (3639)

3591 TCTCACTCTG TCACCTAGGC TGGAGTGCAG TGGTGCAATC ACAGCTCACT GCAGCCCTTA GAGCGGCGGC

3661 CACCGCGGTG GAGCTCCAAT TCGCCCTATA GTGAGTCGTA TTACAATTCA CTGGCGGTG TTTTACAAAG

3731 TCGTGACTGG GAAAACCTG GCGTTACCCA ACTTAATCGC CTTGAGCAC ATCCCTTTT CGCCAGCTGG

3801 CGTAATAGCG AAGAGGCCG CACCGATCGC CTTCCCAAC AGTTGCGCAG CTGGAATGGC GAATGGCGGG

3871 AAATGTAA CGTTAATATT TTGTTAAAT TCGCGTAAA TTTTGTAA ATCAGCTCAT TTTTAAACCA

3941 ATAGGCCGAA ATCGGCAAAA TCCCTTATAA ATCAAAAGAA TAGACCGAGA TAGGGTTGAG TGTGTTCCA

4011 GTTTGGAACA AGAGTCCACT ATTAAGAAGC GTGGACTCCA ACGTCAAAAG GCGAAAAACC GTCTATCAGG

4081 GCGATGGCCC ACTACGTGAA CCATCACCCT AATCAAGTTT TTTGGGGTGG AGGTGCGCTA AAGCACTAAA

4151 TCGGAACCTT AAAGGGAGCC CCGGATTTAG AGCTTGACGG GGAAGCCGG CGAACGTGGC GAGAAAGGAA

4221 GGAAGAAAG CGAAAGGAGC GGGCGCTAGG GCGCTGGCAA GTGTAGCGGT CACGCTGCGC GTAACCAACA

4291 CACCGCCGCG GCTTAATGCG CCGTACAGG GCGCGTCCA GGTGGCACTT TTCGGGGAAA TGTGCGCGGA

4361 ACCCTATTT GTTTATTTT CTAAATACAT TCAATATGT ATCCGCTCAT GAGACAATAA CCCTGATAAA

Figure 14 continued



4431 TGCTTCAATA ATATTGAAAA AGGAAGAGTA TGAGTATTCA ACATTTCCGT GTCGCCCTTA TTCCCTTTTT
4501 TCGGGCATT TGCCTTCCTG TTTTGTCTCA CCCAGAAACG CTGGTGAAG TAAAAGATGC TGAAGATCAG
4571 TTGGGTGCAC GAGTGGGTTA CATCGAACTG GATCTCAACA GCGGTAAGAT CCTTGAGAGT TTTCGCCCGG
4641 AAGAACGTTT TCCAATGATG AGCACTTTTA AAGTTCTGCT ATGTGGCGCG GTATTATCCC GTATTGACGC
4711 CGGGCAAGAG CAACTCGGTC GCCGCATACA CTATTCTCAG AATGACTTGG TTGAGTACTC ACCAGTCACA
4781 GAAAAGCATC TTACGGATGG CATGACAGTA AGAGAAATAT GCAGTGCTGC CATAACCATG AGTGATAACA
4851 CTGCGGCCAA CTTACTTCTG ACAACGATCG GAGGACCGAA GGAGCTAACC GCTTTTTTGC ACAACATGGG
4921 GGATCATGTA ACTCGCCTTG ATCGTTGGGA ACCGGAGCTG AATGAAGCCA TACCAAACGA CGAGCGTGAC
4991 ACCACGATGC CTGTAGCAAT GGCAACAACG TTGCGCAAAC TATTAAGTGG CGAACTACTT ACTCTAGCTT
5061 CCCGCAACA ATTAATAGAC TGGATGGAGG CGGATAAAGT TGCAGGACCA CTTCTGCGCT CGGCCCTTCC
5131 GGCTGGCTGG TTTATTGCTG ATAAATCTGG AGCCGGTGAG CGTGGGTCTC GCGGTATCAT TGCAGCACTG
5201 GGGCCAGATG GTAAGCCCTC CCGTATCGTA GTTATCTACA CGACGGGGAG TCAGGCAACT ATGGATGAAC
5271 GAAATAGACA GATCGCTGAG ATAGGTGCTT CACTGATTAA GCATTGGTAA CTGTACAGAC AAGTTTACTC
5341 ATATATACTT TAGATTGATT TAAAACITCA TTTTAAATTT AAAAGGATCT AGGTGAAGAT CCTTTTGTAT
5411 AATCTCATGA CCAAAATCCC TTAACGTGAG TTTTCGTTCC ACTGAGCGTC AGACCCCGTA GAAAAGATCA
5481 AAGGATCTTC TTGAGATCCT TTTTTCTGCG GCGTAATCTG CTGCTTGCAA AAAAAAAAC CACCGCTACC
5551 AGCGGTGGTT TGTGTCGGG ATCAAGAGCT ACCAACTCTT TTTCCGAAGG TAAGTGGCTT CAGCAGAGCG
5621 CAGATACCAA ATACTGTCTT TCTAGTGTAG CCGTAGTTAG GCCACCACTT CAAGAACTCT GTAGCACCGC
5691 CTACATACCT CGCTCTGCTA ATCCTGTGTA CAGTGGCTGC TGCCAGTGGC GATAAGTCGT GTCTTAACCGG
5761 GTTGACTCA AGACGATAGT TACCGGATAA GCGCGACGGG TCGGGCTGAA CGGGGGGTTT GTGCACACAG
5831 CCCAGCTTGG AGCGAACGAC CTACACCGAA CTGAGATACC TACAGCGTGA GCTATGAGAA AGCGCCACCG
5901 TTCCCGAAGG GAGAAAGGCG GACAGGTATC CCGTAAGCGG CAGGGTCGGA ACAGGAGAGC GCACGAGGGA
5971 GCTTCCAGGG GGAACGCTT GGTATCTTTA TAGTCTGTC GGGTTTCGCC ACCTCTGACT TGAGCGTCGA
6041 TTTTGTGAT GCTCGTCAGG GGGGCGGAGC CTATGGAATA ACGCCAGCAA CGCGGCCCTT TTACGGTTCC
6111 TGGCCTTTT TGGCCTTTT GCTCACATGT TCTTCTCTG GTTATCCCTT GATTCTGTGG ATAACCGTAT
6181 TACCGCCTTT GAGTGAGCTG ATACCGCTCG CCGCAGCCGA ACGACCGAGC GCAGCGAGTC AGTGACGAG
6251 GAAGCGGAAG AGCGCCCAAT ACGCAAACCG CCTCTCCCGG CGCGTTGGCC GATTCAATTA TGCAGCTGGC
6321 ACGACAGGTT TCCCGACTGG AAAGCGGGCA GTGAGCGCAA CGCAATTAAT GTGAGTTAGC TCACTCATT
6391 GGCACCCAG GCTTTACACT TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATT
6461 CACACAGGAA ACAGCTATGA CCATGATTAC GCCAAGCTCG GAATTAACCC TCACTAAAGG GAACAAAAGC

PsII (6533)

6531 TGCTGCAGGG TCCCTAACTG CCAAGCCCA CAGTGTGCC TGAGGCTGCC CCTTCCTTCT AGCGGCTGCC
6601 CCCACTCGGC TTTGCTTTCC CTAGTTTCAG TTAGTTGCGT TCAGCCAAGG TCTGAAACTA GGTGCGCACA
6671 GAGCGGTAAG ACTGCGAGAG AAAGAGACCA GCTTTACAGG GGGTTTATCA CAGTGCAACC TGACAGTCGT
6741 CAGCCTCACA GGGGGTTTAT CACATTGCAC CCTGACAGT GTCAGCCTCA CAGGGGGTTT ATCAGAGTGC
6811 ACCCTTACAA TCATTCCATT TGATTACAA TTTTTTATG CTCTACTGTG CTTAACTTGT AAGTTAAATT
6881 TGATCAGAGG TGTGTTCCCA GAGGGGAAAA CAGTATATAC AGGGTTCAGT ACTATCGCAT TTCAGGCCTC
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7021 ACACAAGATA ACCAAGACAC CTCCCAAGGC TACCACAATG GGCCGCCCTC CACGTGCACA TGGCCGGAGG
7091 AACTGCCATG TCGGAGGTGC AAGCACACCT GCGCATCAGA GTCCTTGGTG TGGAGGGAGG GACCAGCGCA
7161 GCTTCCAGCC ATCCACCTGA TGAACAGAAC CTAGGGAAAG CCCCAGTTCT ACTTACACCA GGAAAGGC

Figure 14 continued